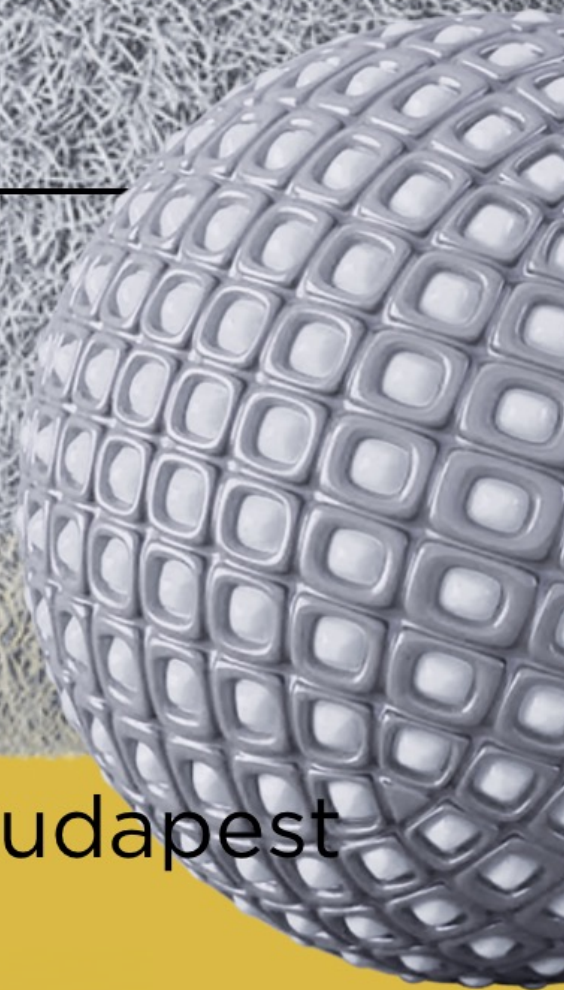


IIIOIII IC

# Future Materials Conference

September 15-16, 2022

Moholy-Nagy University of Art and Design, Budapest



OPENING KEYNOTE

# DESIGNING TEXTILES

## for a circular future

**Rebecca Earley**

Professor of Circular Design Futures

**ual:** centre for  
circular design

# OVERVIEW

>> BACKGROUND

>> CIRCULAR TEXTILES

>> FUTURES FOCUS



# DESIGNING TEXTILES





# MAJOR PROJECTS

5Ways



 Arts & Humanities Research Council

Worn Again



 Arts & Humanities Research Council

Mistra Future Fashion I



 **mistra future fashion**

Mistra Future Fashion II



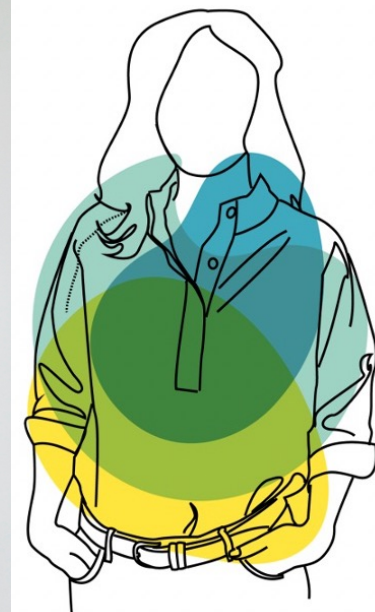
 **mistra future fashion**

Trash-2-Cash



 **Horizon 2020**  
European Union Funding  
for Research & Innovation

Herewear



 **Horizon 2020**  
European Union Funding  
for Research & Innovation



# CONTRIBUTION

Textile designer  
turned researcher,  
research centre  
director, systems &  
futures thinker,  
communicator,  
facilitator, educator  
coach & mentor

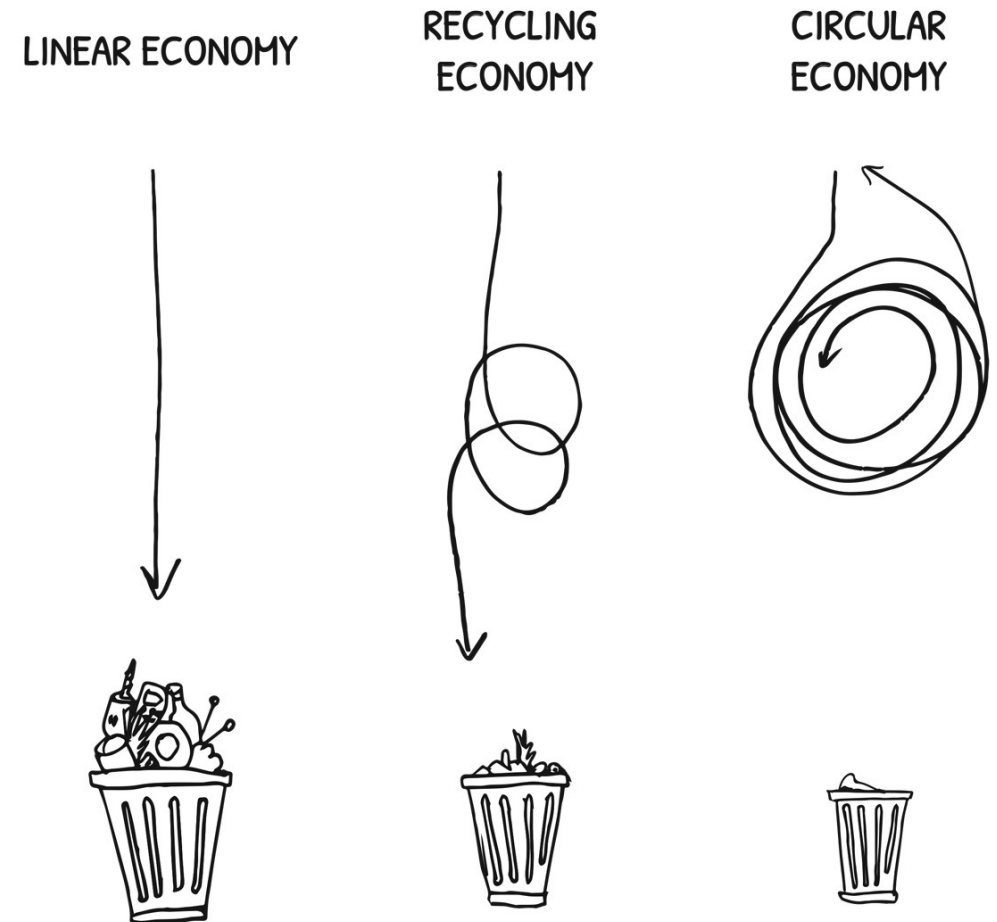




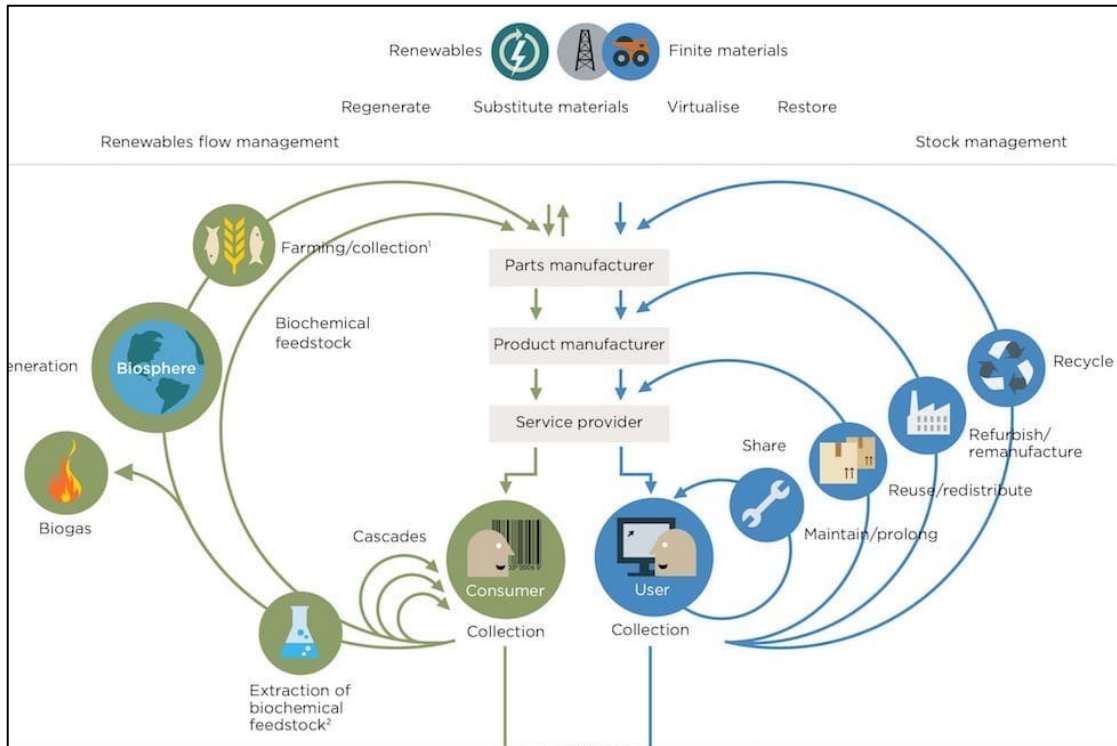
# CIRCULARITY & TEXTILES

Where are we now? What have we learned about circular textiles, and what does the future hold for us all?

Looking through the eyes of people - designers, producers and consumers - this presentation draws on recent research insights from Centre for Circular Design and World Circular Textiles Day 2050, to propose how we might work towards a fully circular industry.



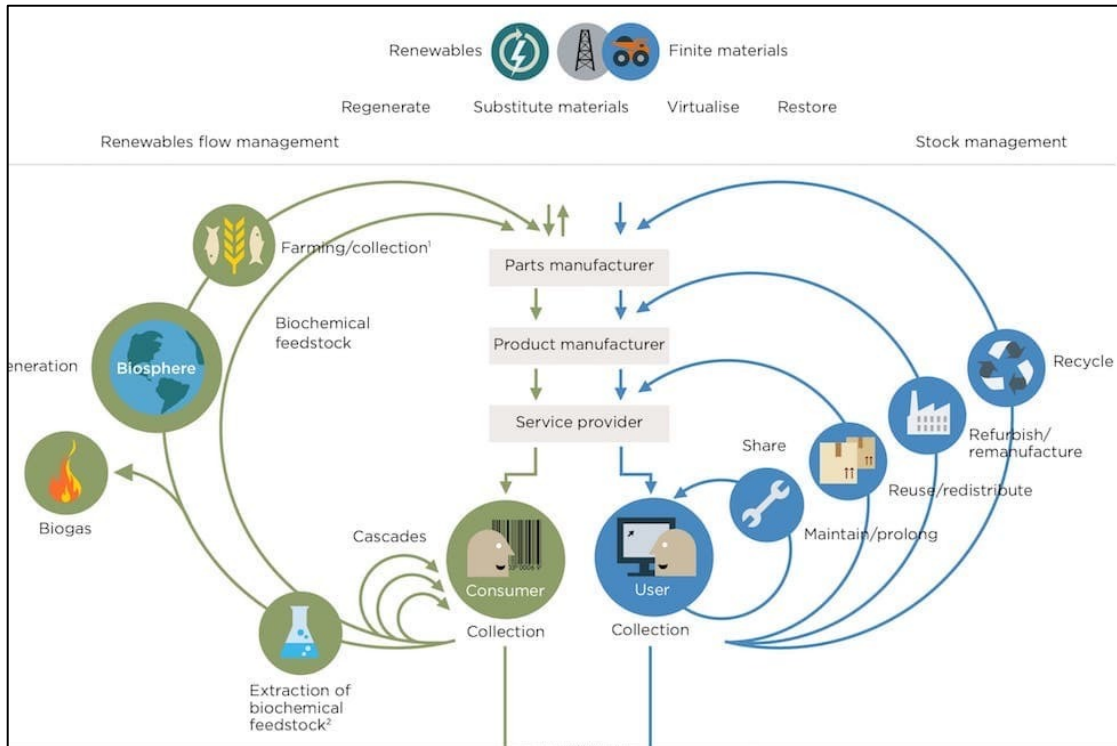
# BUTTERFLIES...



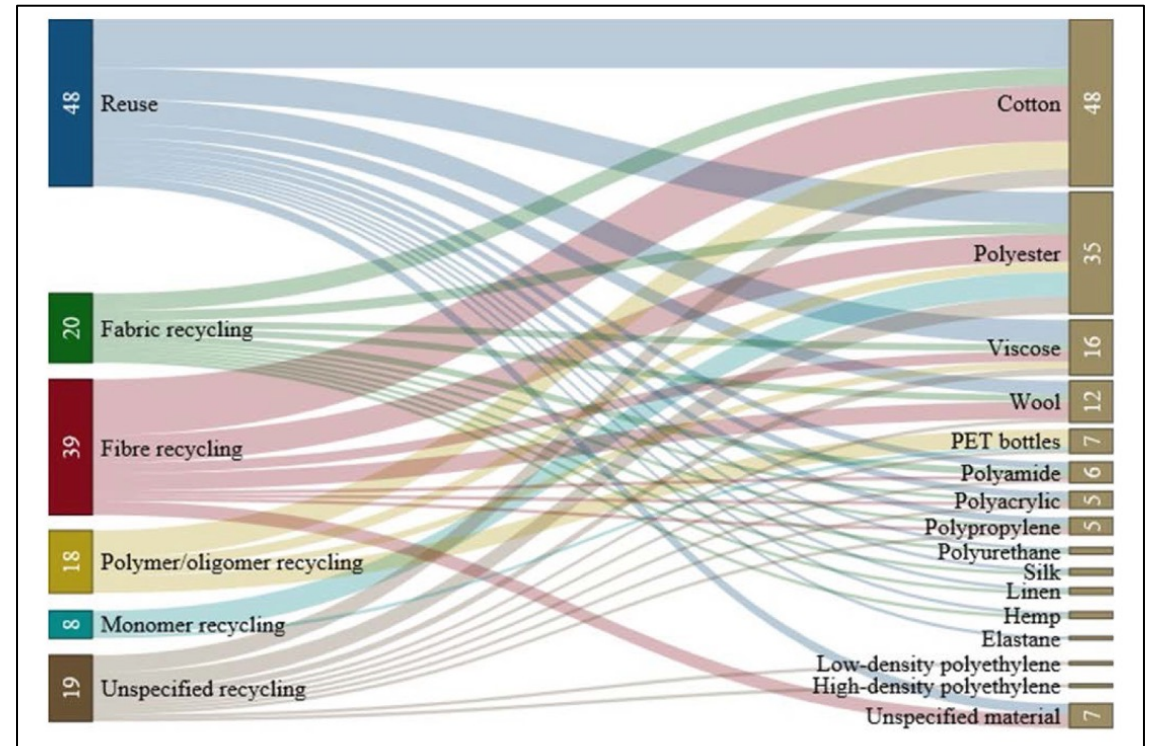
Source: Ellen MacArthur Foundation



# ... & BARRIERS



Source: Ellen MacArthur Foundation



Source: Mistra Future Fashion

# EMBRACING COMPLEXITY

## DESIGN LAB Customisation

are invited to take the shirt to flagship Store, and the FKRF space, to get it 'overprinted'. The area with a digital print archive, printer and heat-press. The process is directed by an *Overprinting and Print Assistants* that are in direct contact with consumers. After a choice from a range of overprints, users leave with the 'new' shirt, and a new retail experience.

## Swapping Cycles

started in exchanging fashion drobes, helping each other to get their products to their full potential

ual: centre for circular design



## FK-DE Black L

To make the transition, the DESIGN LAB collaborated with studios & small production units. Long-Life products were worked out in advance to begin ahead of the supply chain management work independent experts in building supply chains. At this stage, the option was chosen by the first original sale condition, the jacket up to

## Luxury Vintage

The jacket is integrated in to the Luxury Vintage area of the FK\_DESIGN LAB where people can borrow it. Different stories and uses will be accessible for users.



# EMBRACING COMPLEXITY

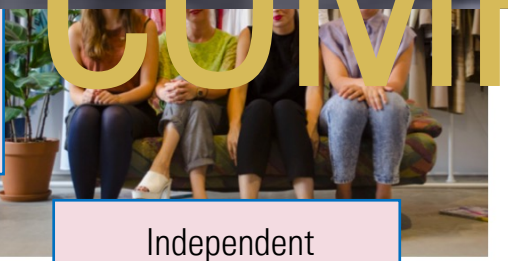


Embedded Academic Designers



Fashion Remanufacturers

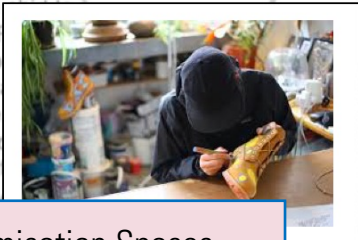
In-store Fashion Libraries



Independent Fashion Libraries



Rental Designers



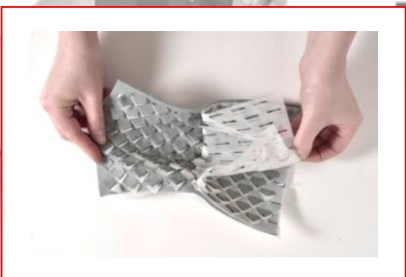
Customisation Spaces



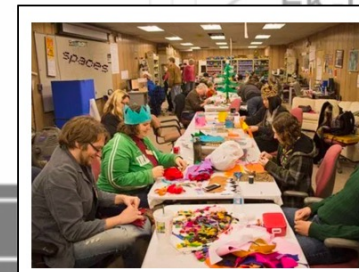
Fashion Sharers



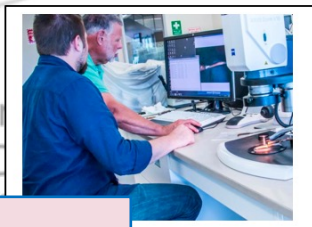
Fashion Philanthropists



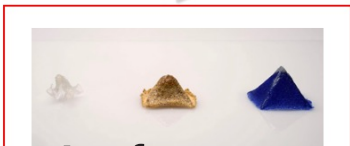
Remanufacture Designers



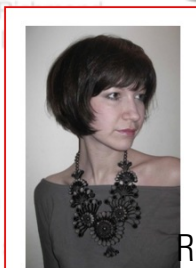
User ReMake Spaces



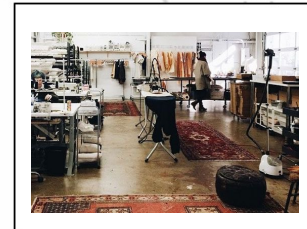
Design Science Labs



Remanufacture Design Engineers



Remanufacture Craftspeople



# THEMES

1. SUSTAINABLE
2. MINIMAL
3. TECHNICAL
4. BIOLOGICAL
5. GEO/LOCAL
6. TEMPORAL
7. PERSONAL
8. SOCIO-POLITICAL
9. SCALE
10. FEASIBLE

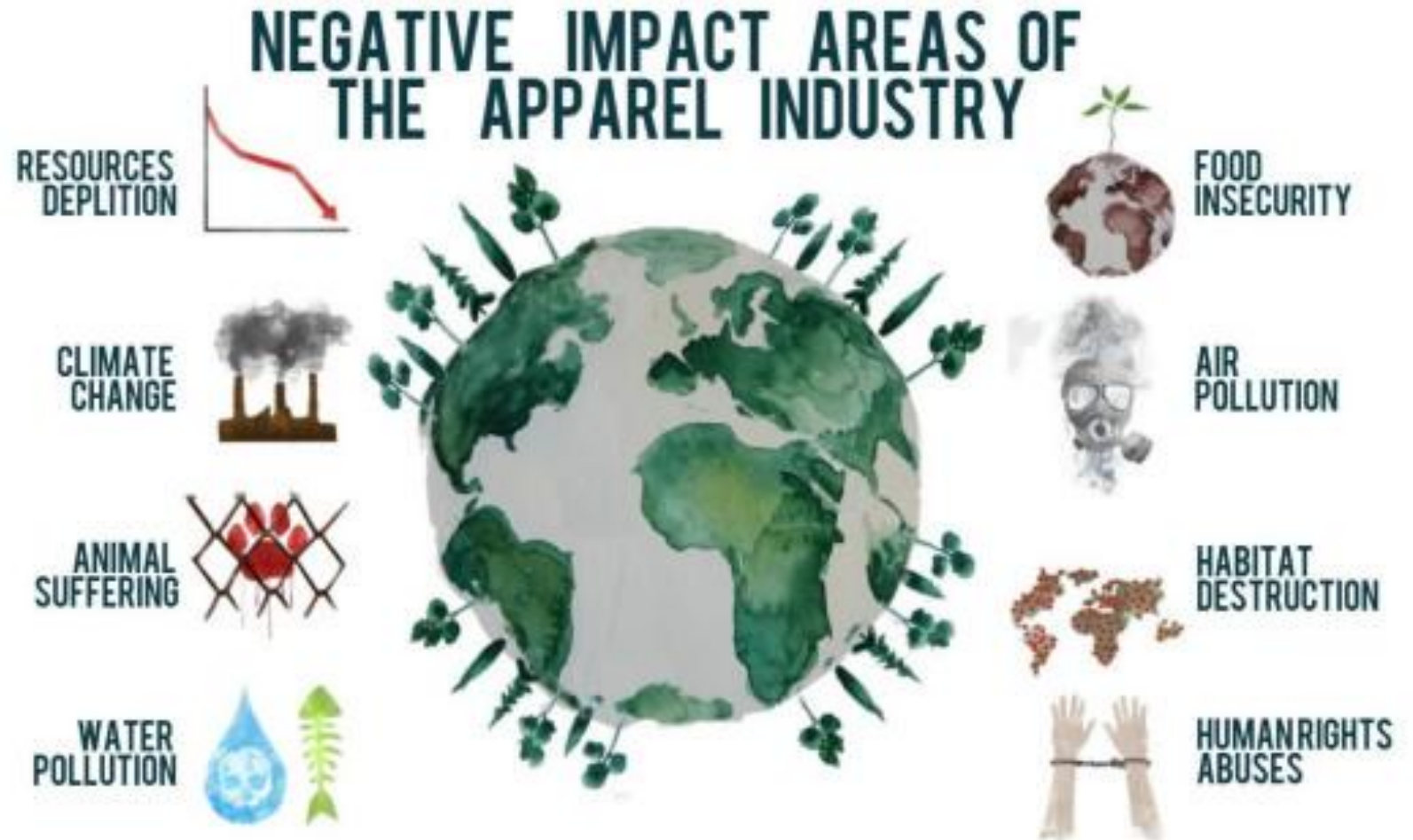


# SUSTAIN

# ABLE

# SUSTAINABILITY

Sustainability is a societal goal that broadly aims for humans to safely co-exist on planet Earth over a long time.





# SUSTAINABLE TEXTILES

TED's TEN are:

*Circularity can support and even drive sustainability in the industry*

PRODUCT

1

Design to  
Minimise Waste

2

Design  
for Cyclability

3

Design to Reduce  
Chemical Impacts

4

Design to Reduce  
Water and Energy  
Use

5

Design That Explores  
New Technologies

PEOPLE

6

Design that Takes  
Models from  
Nature & History

7

Design for Ethical  
Production

8

Design to Reduce  
the Need to Consume

9

Design to Dematerialise  
and Develop  
Systems & Services

10

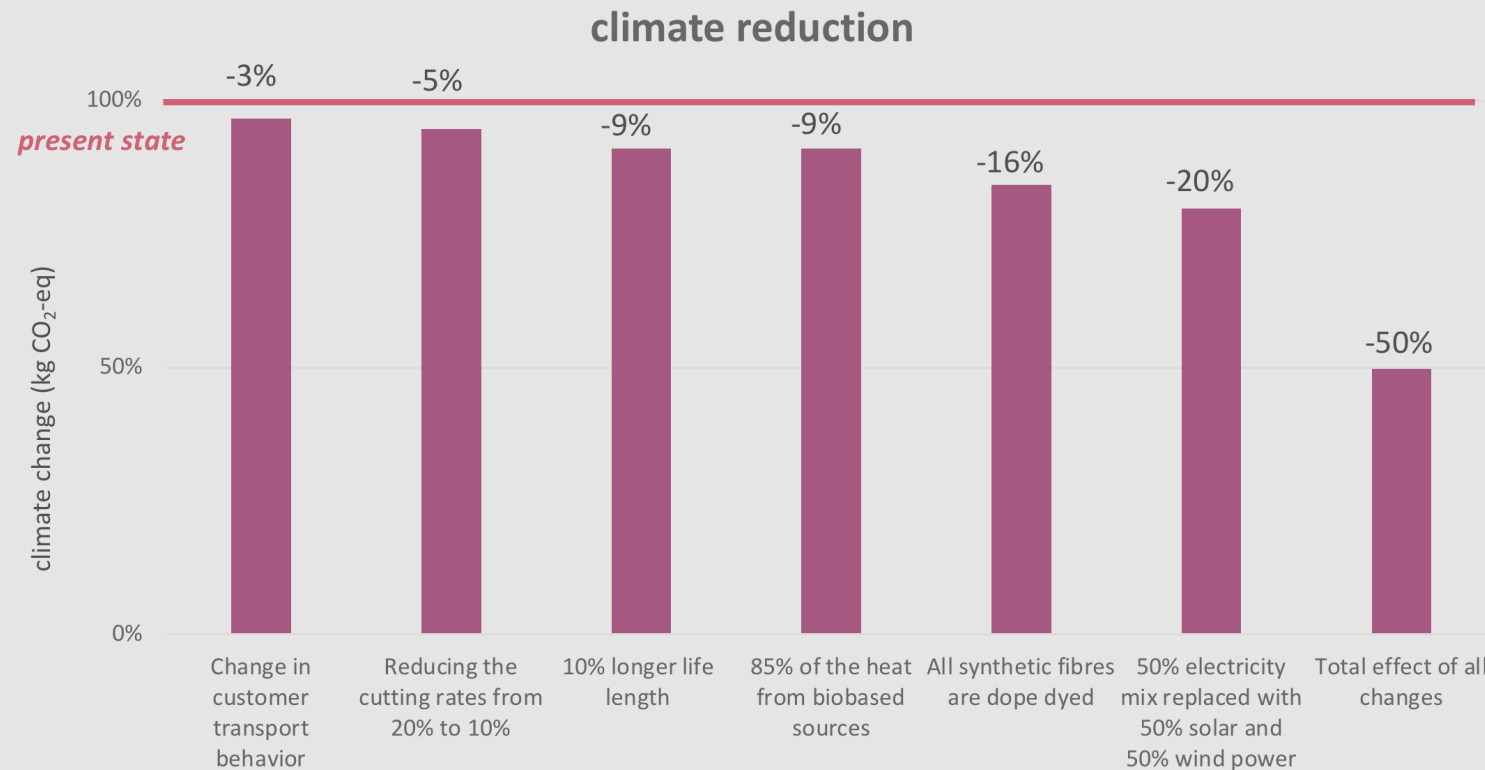
Design Activism

# CIRCULARITY & NET ZERO

## How to cut emissions in Sweden by 50% by 2030

Roos et al (2019)  
Mistra Future Fashion

“what is measured is improved”  
potential to reduce environmental impact



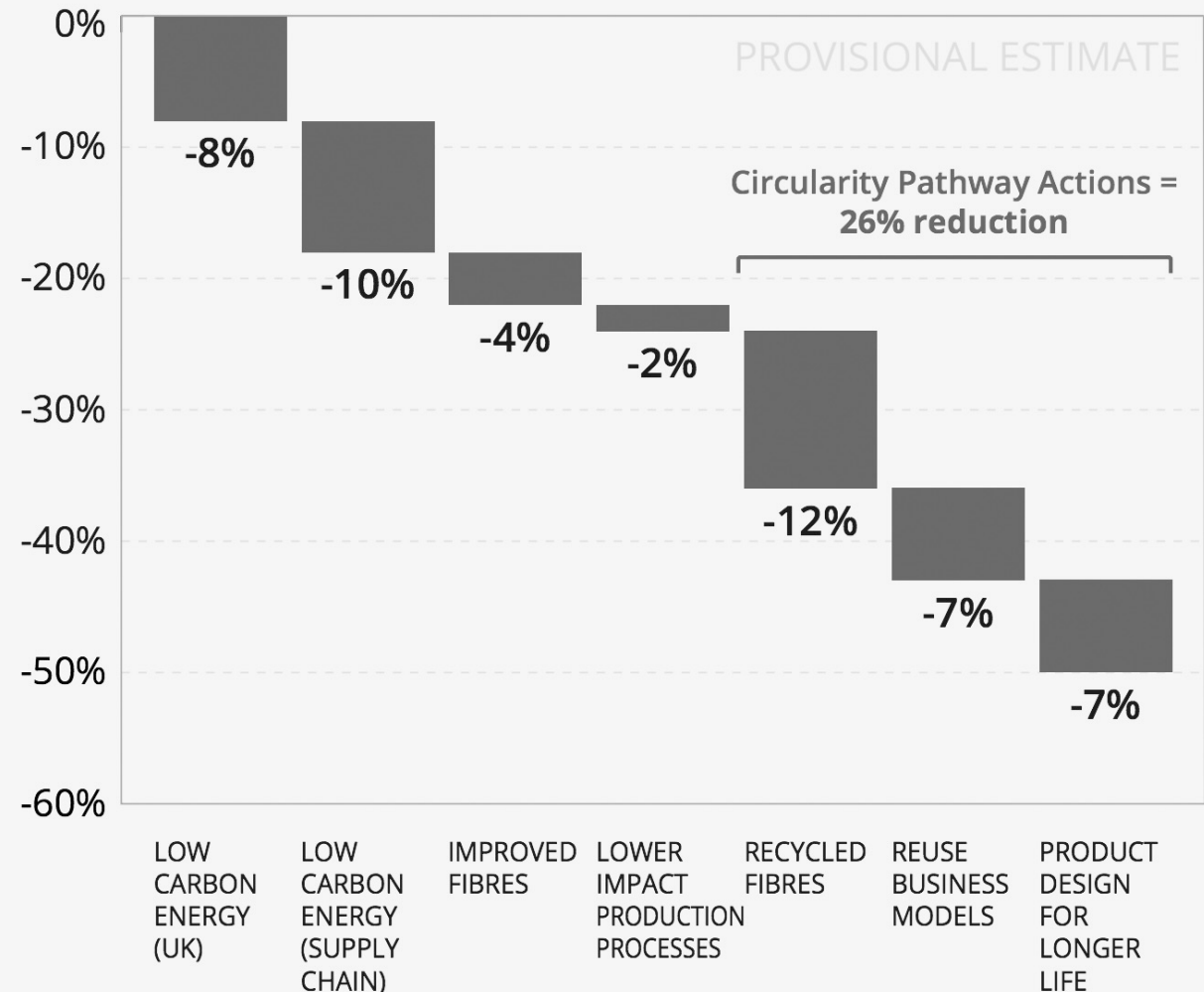


# CIRCULARITY & NET ZERO

Circularity pathway could achieve 26% of a 50% target in the UK

WRAP's 'Textiles 2030 Circularity Pathway: Transforming our industry for the planet' (2021)

## Carbon



MINIMUM

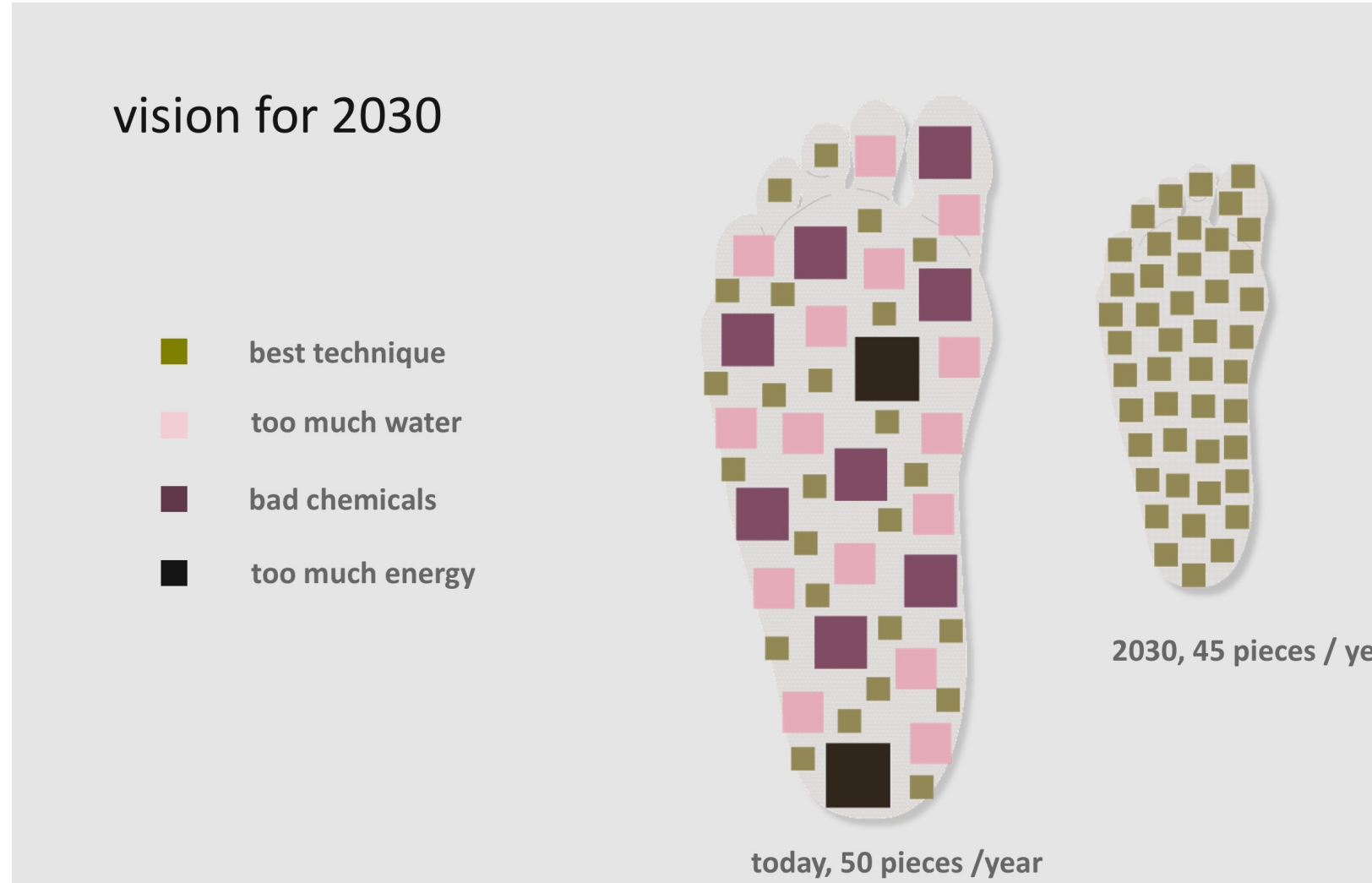
AL



# LESS & BETTER

Swedish industry vision for 2030. Reduce consumption by 10%, but make the products on offer more sustainable

Roos et al (2019)  
Mistra Future Fashion



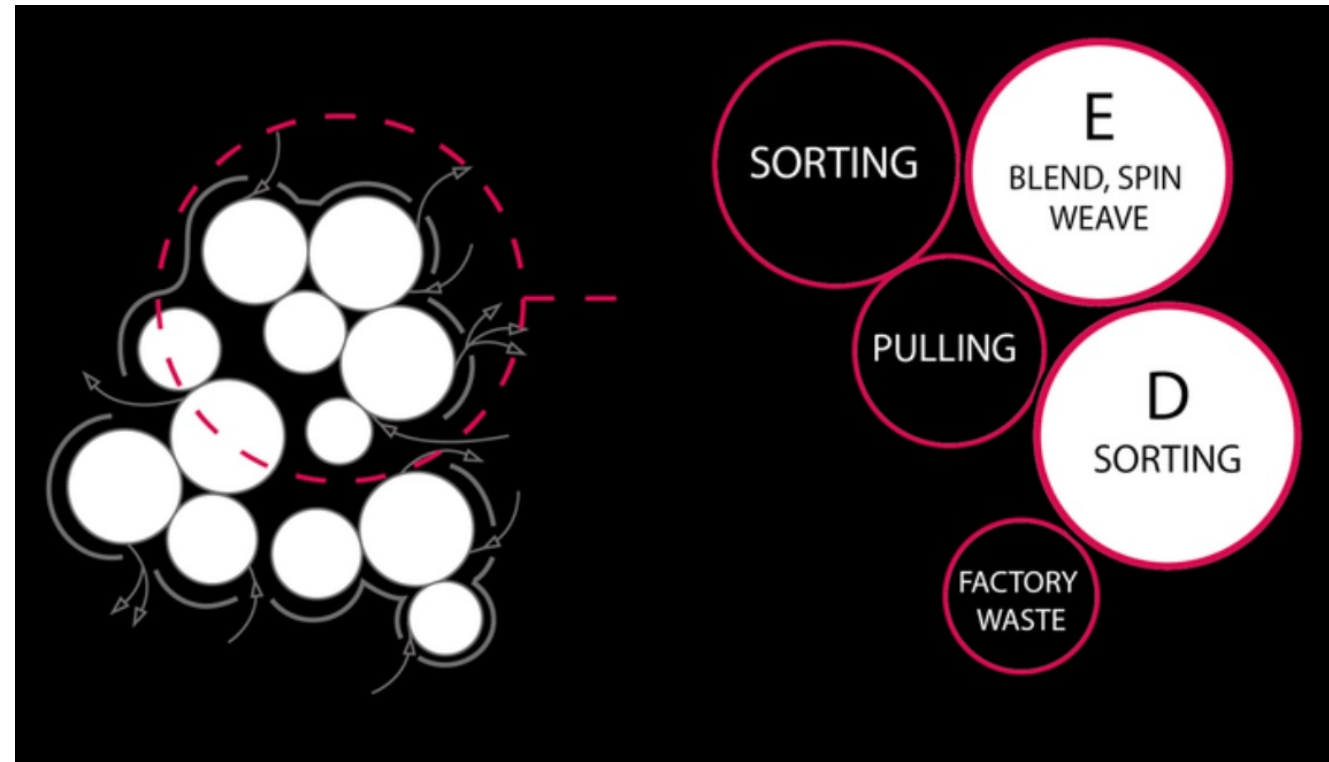
# TECHNICAL

# L



# RECYCLING TECHNOLOGIES

- Mechanical recycling
- Chemical recycling
- Biodegradability
- Water Solubility
- Compostibility



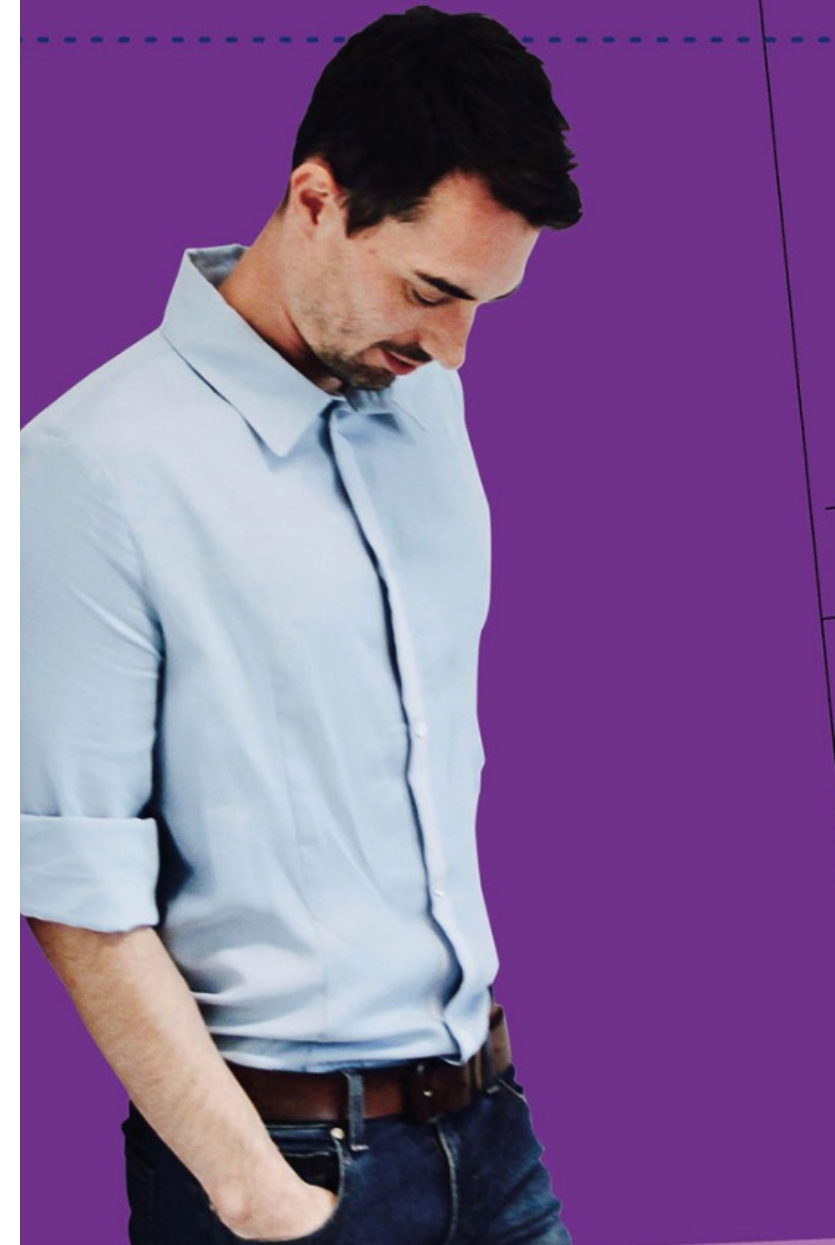
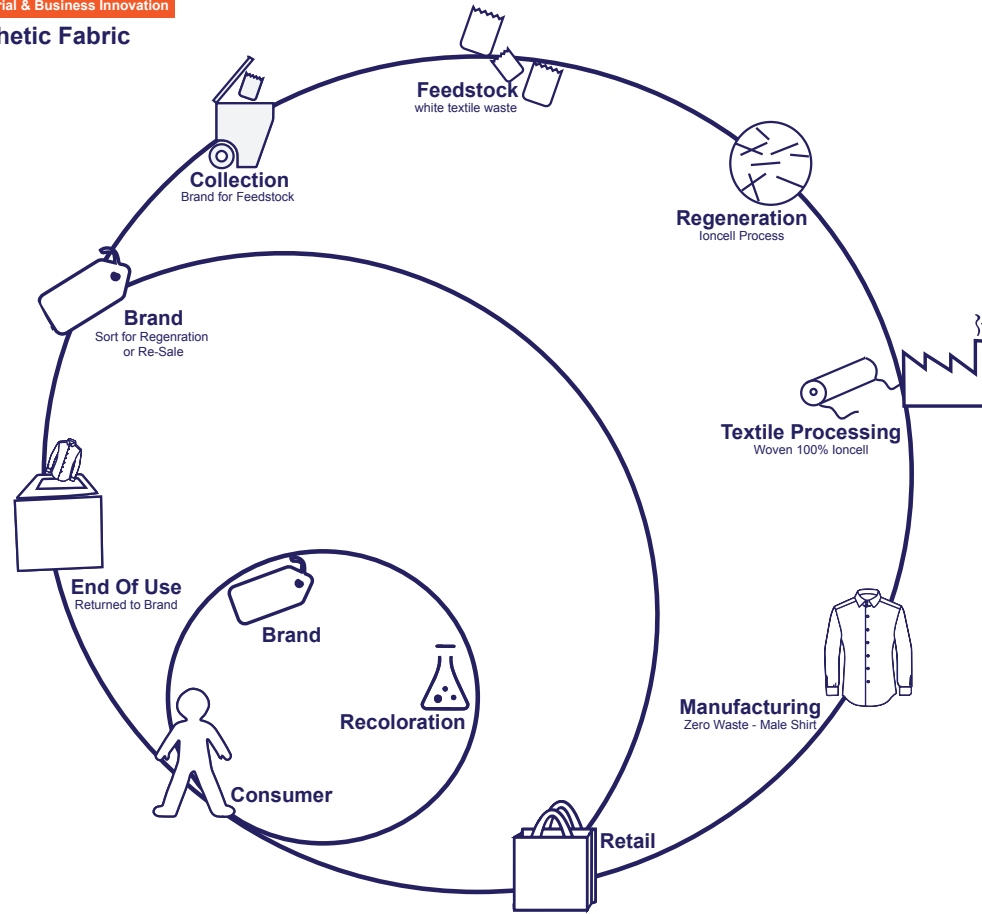
Detail of Prato wool recycling industry simplified model, Source: Author

Cathryn Anneka Hall (2019)

# DESIGN FOR EOL

Material & Business Innovation

Artificial Fabric





# DESIGN FOR EOL

Agricultural by-waste, like straw and seaweed, are currently giving us a new range of materials that can be created without using extra resources like land, water and pesticides.

The potential to create these in regional contexts, using local waste with differing characteristics, is the central ethos in the EU project, HEREWEAR (2022 – 2024)



# BIOLOGIC

**UAL**  
ual: centre for  
circular design

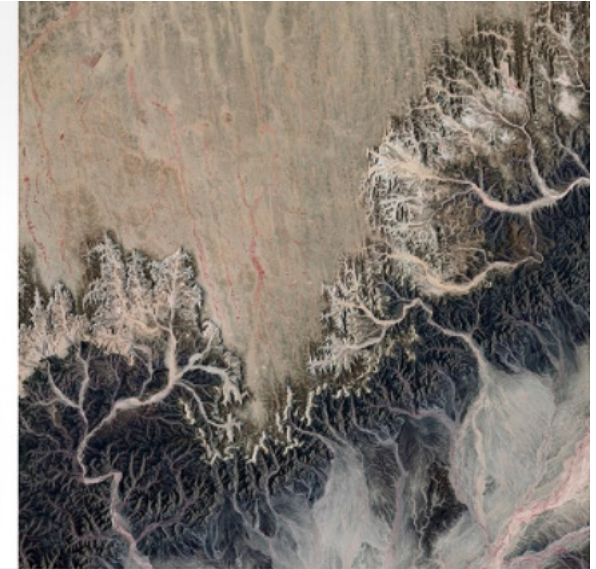


# THE SYMBIOCENE

A term coined in 2011 by Glen Albrecht. He uses this term to argue that...

human history should enter a new era that is characterized by harmonious interactions between humans and all other living beings.

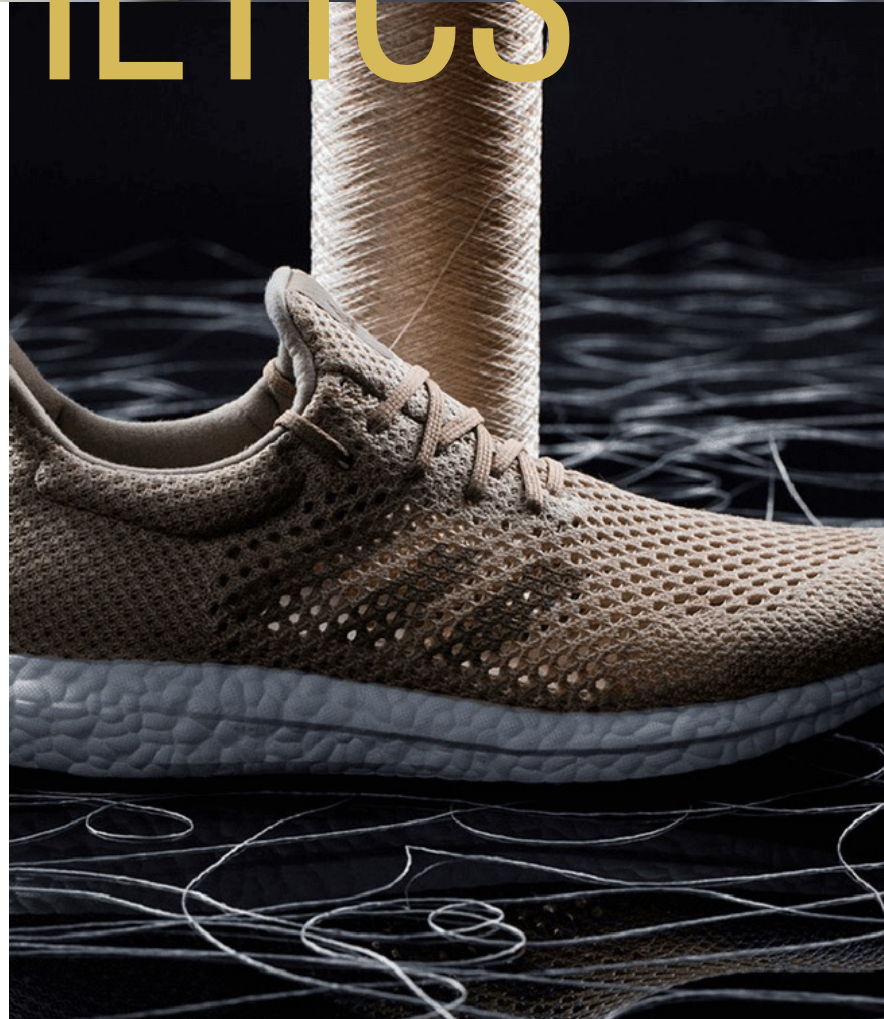
Source: <https://symbioscene.com/matter-moves-mind/>  
Culturesphere Gallery, Munich, from 14 – 25 June 2022





# BIO SYNTHETICS

Synthetics and semi-synthetics made from non-fossil sources



Source: <https://www.commonobjective.co>  
Adidas biodegradable trainer made from spider silk



# BIO BASED WASTE



The Material Lifecycle Wheel  
Dr Laetitia Forst (2021)

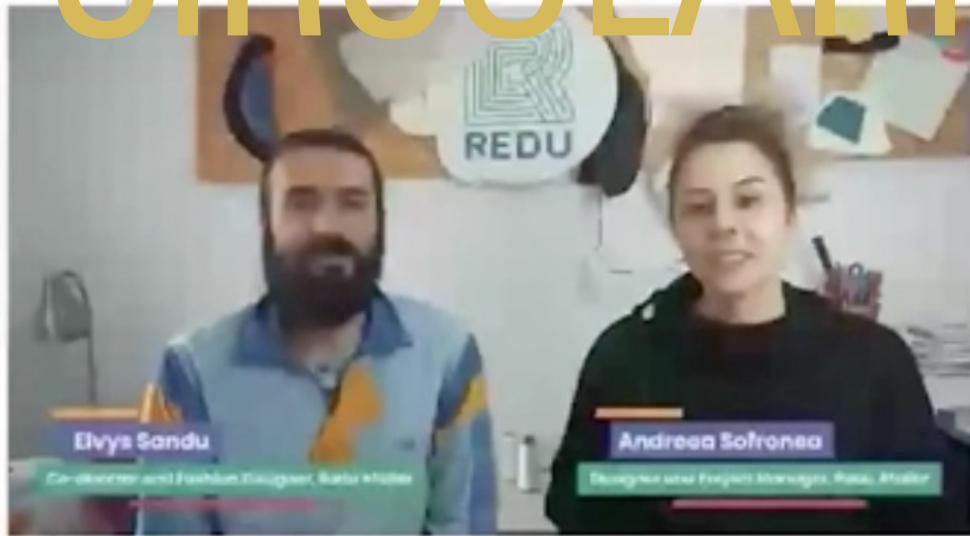
Eastman Naia™ Renew is a cellulose acetate fibre produced from 60% sustainably sourced wood from North America and Brazil, and 40% certified recycled waste material. Currently, the primary waste feedstock used in the production of Naia™ Renew is post-consumer carpets, with the ability to process other hard-to-recycle mixed waste materials which don't necessarily need to be textiles.



# GEO / LOCAL



# CIRCULARITY & PLACE



Connecting clothes, community, craft,  
conversation and culture

Mai Bine, Romania  
HEREWEAR (2020 – 2024)

# TEMPORAL



# SUPER SLOW

Make things to last, and from materials that can be recycled. Polyester is pretty good for this.

Eternal Trench (2018)

Filippa K, Sweden

Mistra Future Fashion





# ULTRA FAST

Make fast work for us.  
*(It's not going away.  
Really, It's not).*

**Paper Leather Jacket (2018)**

Professor Kay Politowicz  
& Hjalmar Granberg  
Mistra Future Fashion





# PERSON

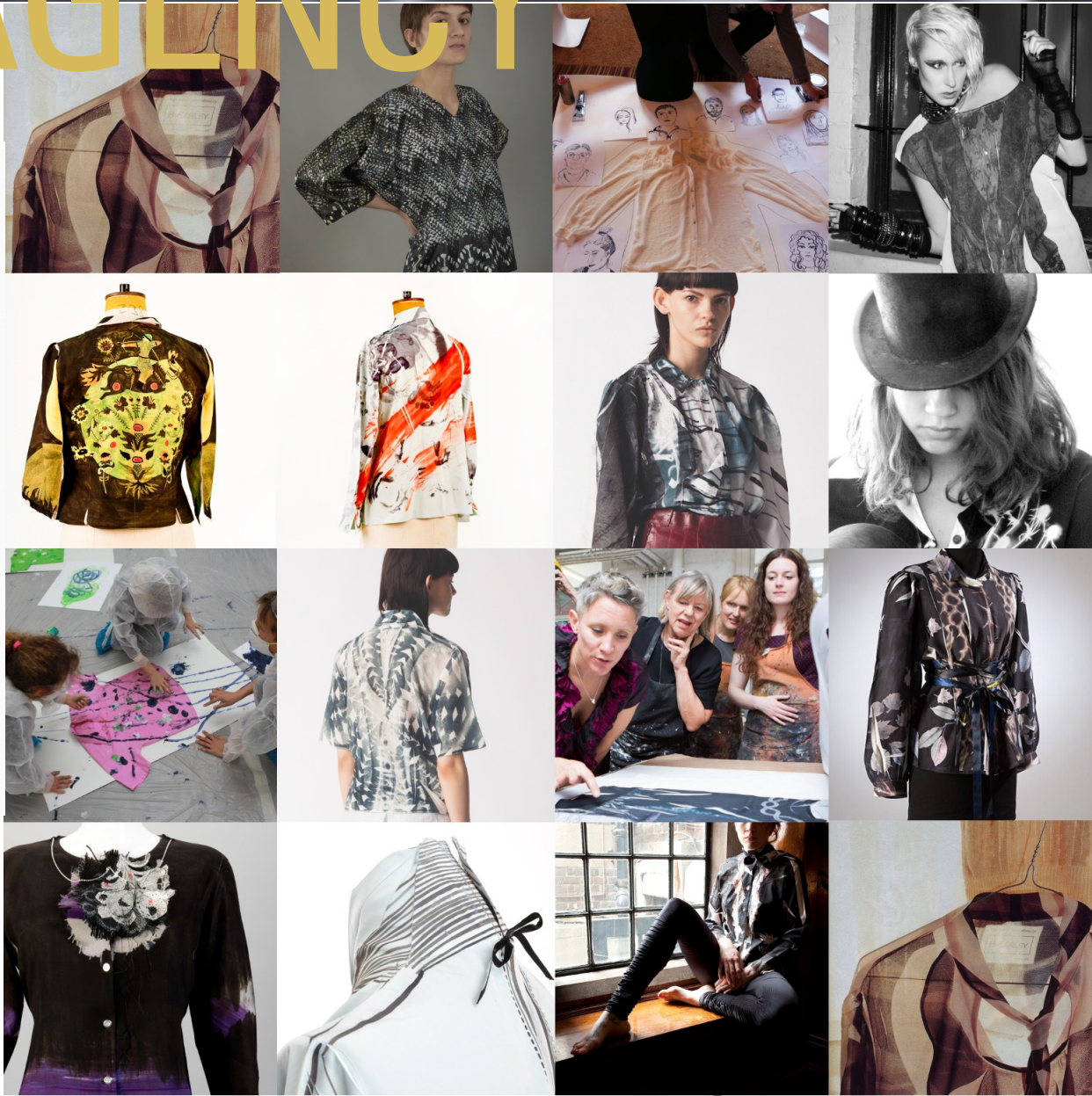
# AL



# MEANING & AGENCY

BLACK + HACK + CHAT

Top 100 Project (1999-2019)  
Professor Becky Earley





# SOCIO- POLITICAL

# DESIGN & SOCIAL CHANGE

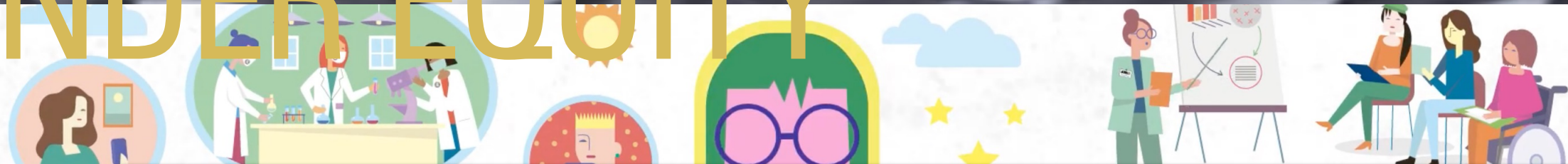
Shifting to a circular textiles industry means starting as we mean to go on. Education needs to change.

Cultures of Resilience  
(2014-2016)

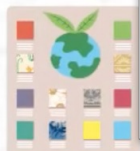
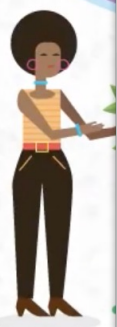
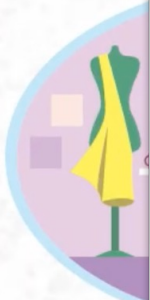




# GENDER EQUITY



She  
Makes  
(2021-23)



Materials, making,  
innovation &  
gender equity



Horizon 2020  
European Union Funding  
For Research & Innovation



project financed by  
the European Union

Shemakes has received funding  
from the European Union's Horizon 2020  
research and innovation programme  
under grant agreement No 10100620



# SCALE



# SCALE

## Service Shirt (2018)

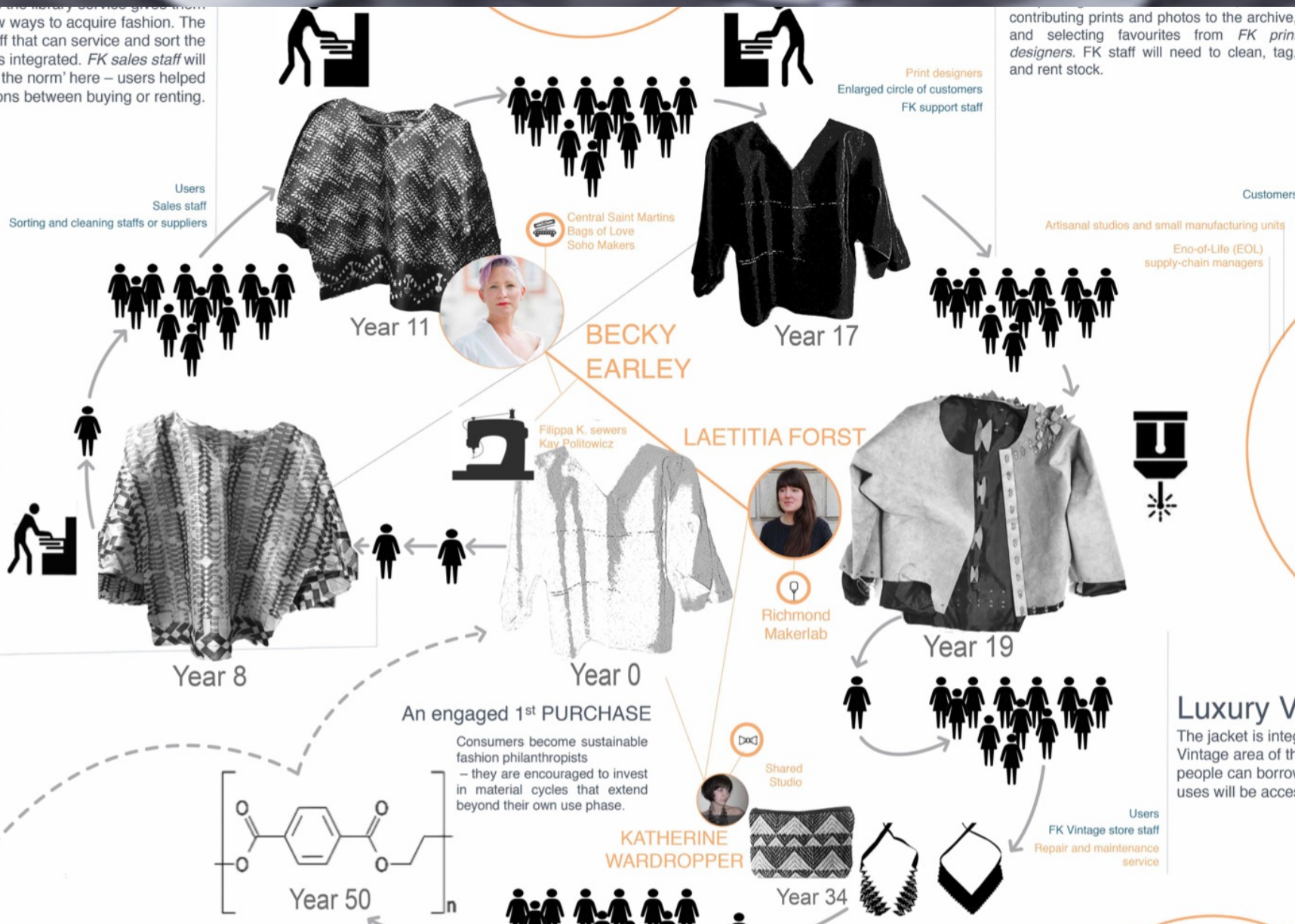
Users have new ways to acquire fashion. The opportunity will be for staff that can service and sort the clothes. A take-back system is integrated. FK sales staff will be needed to work 'beyond the norm' here – users helped to make decisions between buying or renting.

### DESIGN LAB Customisation

Users are invited to take the shirt to the flagship Store, and the FKRF space, to get it 'overprinted'. The area has a digital print archive, a printer and heat-press. The shirts are directed by an *Overprinting and Print Assistants* that are in contact with consumers. After selection from a range of overprints, users leave with the 'new' shirt, adding a new retail experience.

### Users and Friends swapping Cycles

Users are invited to participate in exchanging fashion 'drobes', helping each other to get their products to their full potential.



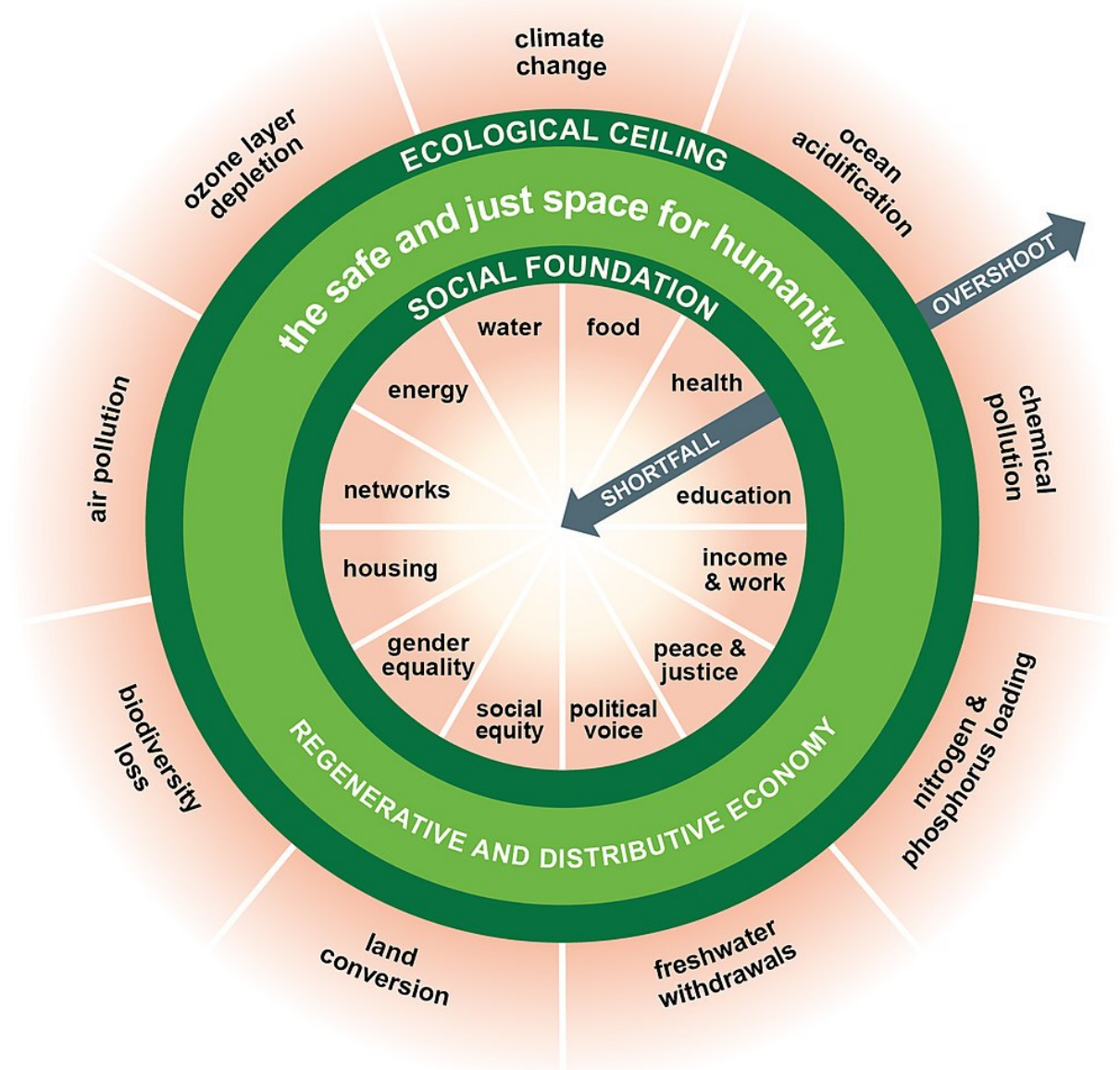
# FEASIBLE



# ECONOMICS

Sustainable change and circular economies need investment.  
Our economic models and priorities need to change.

Kate Raworth's Doughnut Economics (2017)



# WCTD 2050: 7 OCTOBER

## THE VISION: FULL TEXTILES CIRCULARITY BY 2050

What does fully circular by 2050 mean?

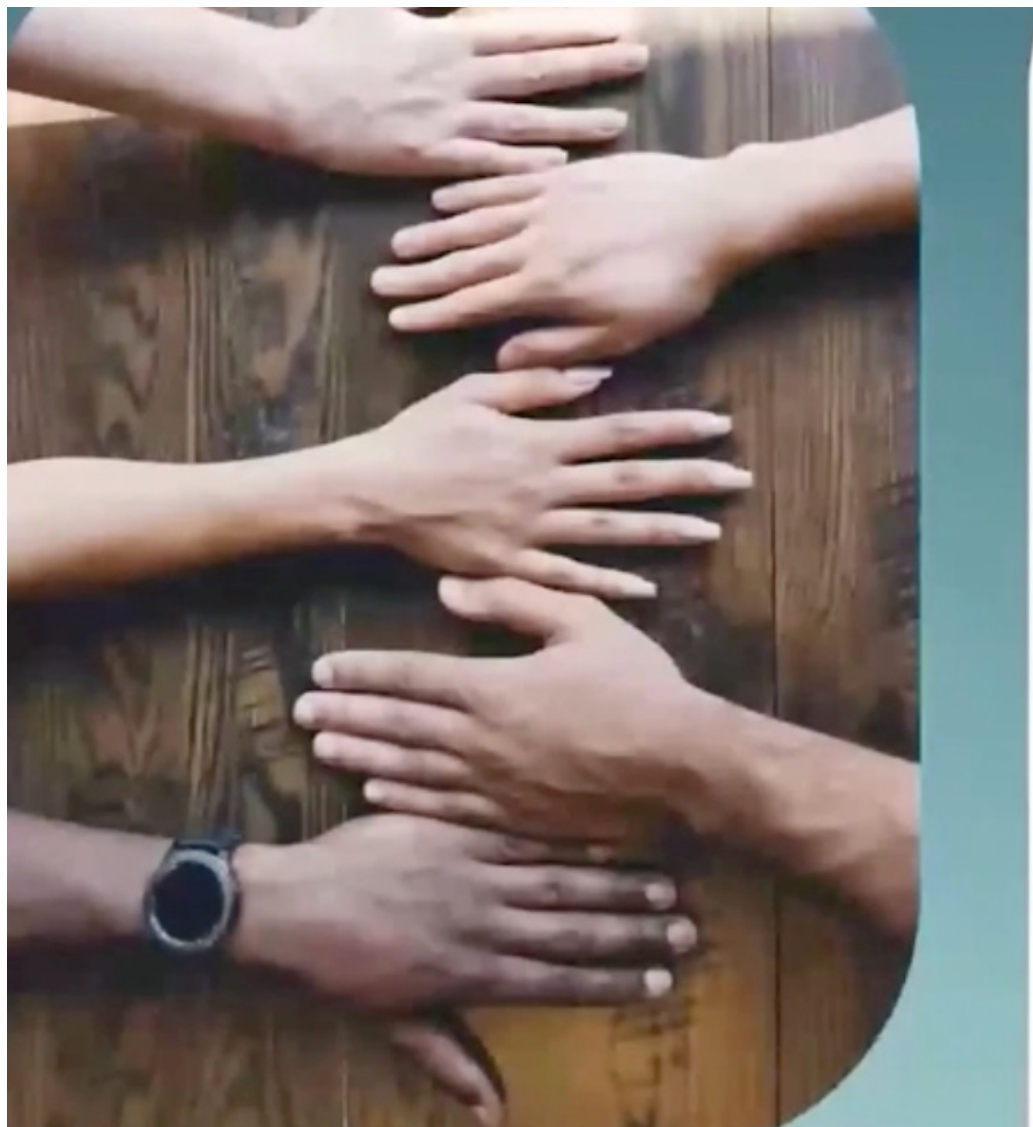
- Shared textile resources, in the form of Products and Materials, are kept in **continual circulation**
- Virgin resources are **replaced with circular and renewable materials** and nothing goes to landfill
- Dignity, equity and equality, for the **people** involved in all parts of the circular value chain





# WCTD 2050: 7 OCTOBER

Get involved –  
become a  
signatory



## What is it?

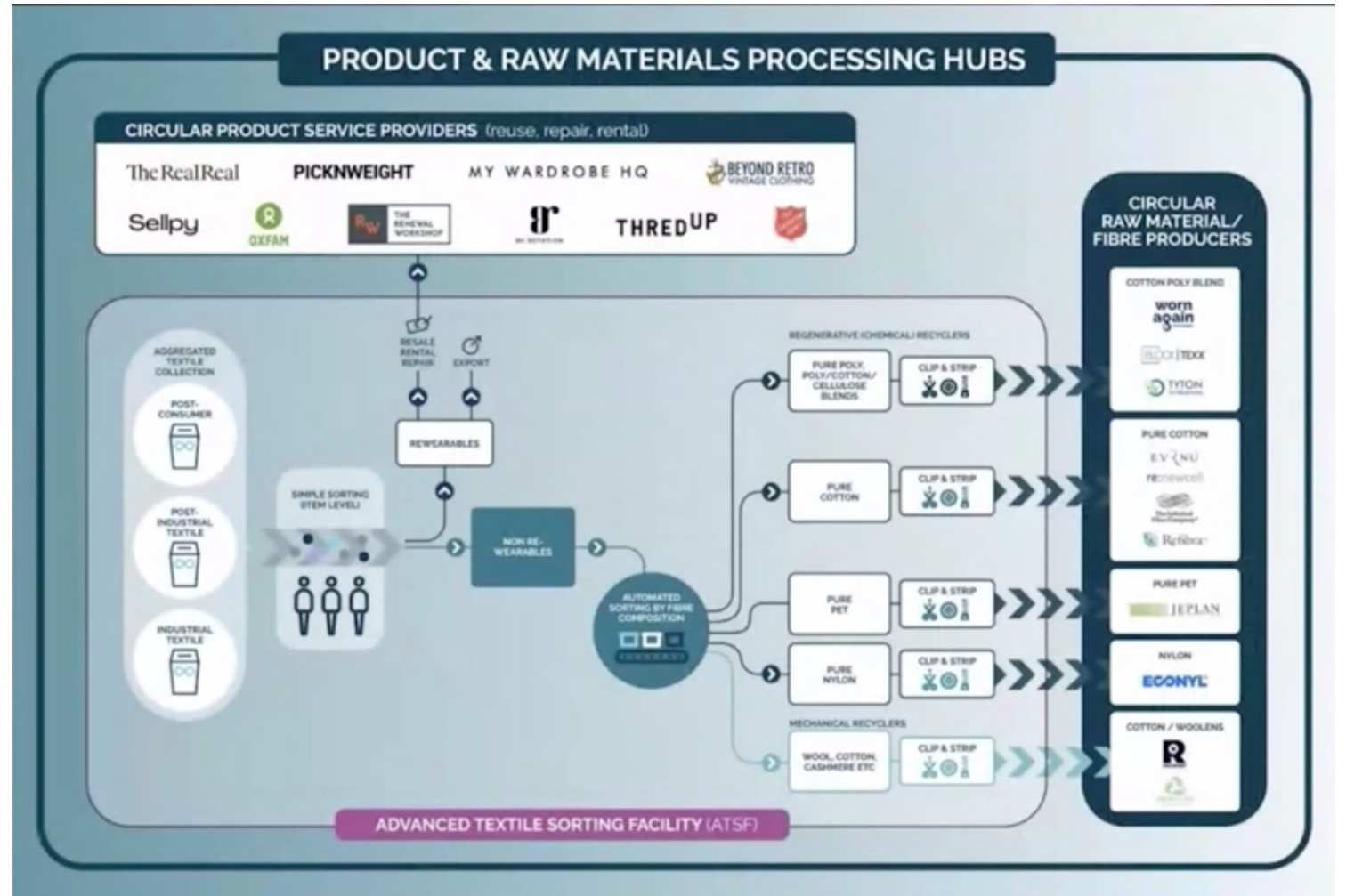
World Circular Textiles Day, which takes place every year on 8th October, has been launched to celebrate the efforts of a growing community of companies, organisations and individuals actively working towards a circular textiles future.

It is a living, breathing time capsule to record the progress and chart the momentum of circularity in textiles. An ever-evolving roadmap towards full circularity, created to:

- **Build a 30-year crowd sourced digital time capsule** which captures circular textiles advancements via the WCTD Knowledge Hub to provide a snapshot of the ever-changing landscape over the next 30 years.
- **Host an annual event on 8th October**, a day to report, reflect, and celebrate circularity progress momentum from the previous year while looking forward to the future.
- **Grow our community of signatories** with circular textiles ambitions.

# WCTD 2050: 7 OCTOBER

Making connections between planet, people and purpose, through investment, scale and behaviour change...



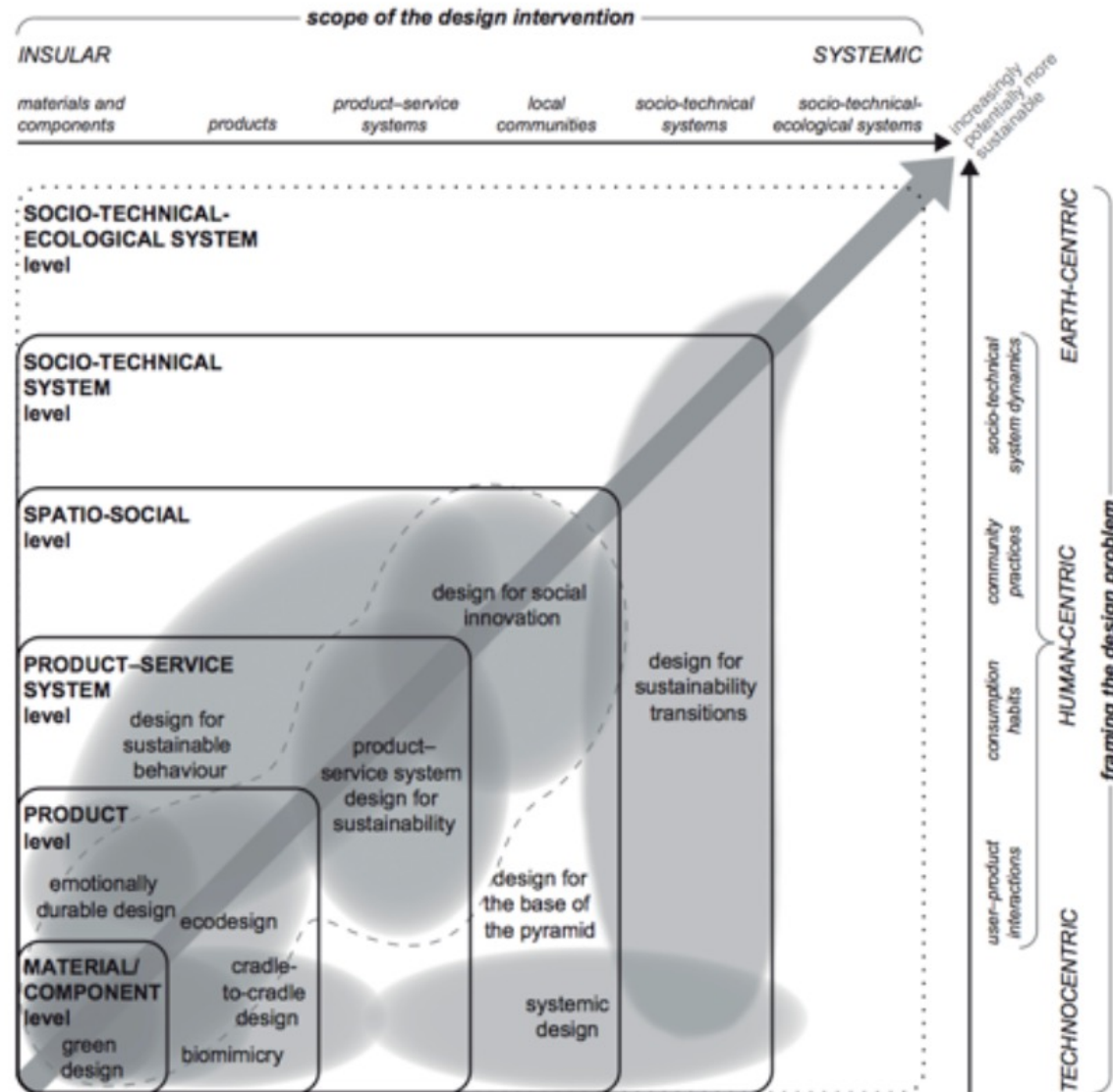


# DESIGN 4.0



- Socio-Technical-Ecological System
- Socio-Technical System
- Spatio-Social
- Product Service System
- Products
- Materials

Source: Design for Sustainability (Ceschin & Gaziulusoy 2019)  
<https://www.taylorfrancis.com/books/9780429456510>



FIND OUT MORE:

# CENTRE FOR CIRCULAR DESIGN

[Circulardesign.org.uk](https://Circulardesign.org.uk)

## WCTD 2050

[Worldcirculartextilesday.com](https://Worldcirculartextilesday.com)

**ual** centre for  
circular design

### PROJECTS:

5WAYS (2002- - 2003)

TOP 100 (1999 – 2019)

WORN AGAIN (2005-2009)

CULTURES OF RESILIENCE (2014-16)

MISTRA FUTURE FASHION (2011-2019)

TRASH-2-CASH (2015-2018)

SHEMAKES (2021-2023)

HEREWEAR (2020-2024)



# THANKS

**Rebecca Earley**

Professor of Circular Design Futures

[r.l.earley@arts.ac.uk](mailto:r.l.earley@arts.ac.uk)

KAY POLITOWICZ, KATE GOLDSWORTHY, CLARA VULETICH, ROSIE HORNBUCKLE, LAETITIA FORST, CATHRYN HALL, SANNE VISSER, MARION REAL, CYNDI RHOADES, GWEN CUNNINGHAM, GIADA DAMMACCO, SANDRA ROOS, GUSTAV SANDIN, CHRISTIAN TUBITO, MAIBINE